

AMENDMENTS TO THE CLAIMS

The following Listing of Claims will replace all prior versions and listings of claims in this application.

Listing of Claims:

1. (Currently Amended) A process for producing foam beads from thermoplastic polymers, encompassing the stages of

- a) addition of a blowing agent to a thermoplastic polymer melt,
- b) cooling and extrusion, through a die, of the polymer melt comprising blowing agent,
- c) cutting of the polymer melt comprising blowing agent downstream of the die at reduced pressure with foaming to give foam beads,

which comprises using a blowing agent in which water and a solubilizer are present, wherein the foam beads have a bulk density in the range from 15 to 25 kg/m³ and wherein the solubilizer used comprises an aliphatic alcohol, ketone, ether, or ester and wherein the blowing agent used comprises a mixture of

from 0.1 to 3% by weight of water,

from 0.1 to 3% by weight of an aliphatic alcohol, ~~ketone~~ ketone, ether, or ester, and

from 1 to 10% by weight of an aliphatic, halogenated, or halogen-free hydrocarbon, N₂, or CO₂ based on the thermoplastic polymer.

~~wherein~~

2. (Canceled)

3. (Previously Presented) A process as claimed in claim 1, further comprising an adsorbent wherein the adsorbent used comprises aluminum hydroxide, phyllosilicate, or zeolite.

4. (Previously Presented) A process as claimed in claim 1, wherein the blowing agent also comprises CO₂, N₂, or an aliphatic, halogenated, or halogen-free hydrocarbon.

5. (Canceled)
6. (Previously Presented) A process as claimed in claim 1, wherein the thermoplastic polymer used comprises polystyrene, styrene copolymers, polyethylene, polypropylene, or a mixture of these.
7. (Previously Presented) A process as claimed in claim 1, wherein the thermoplastic polymer has a bi -or multimodal molecular weight distribution.
8. (Previously Presented) A process as claimed in claim 1, wherein the thermoplastic polymer used comprises polystyrene with a polydispersity M_w/M_n of at least 2.5.
9. (Previously Presented) A process as claimed in claim 1, wherein, prior to or after addition of the blowing agent, an IR absorber is added to the thermoplastic polymer melt.
10. (Original) A process as claimed in claim 9, wherein the IR absorber used comprises from 0.1 to 2.5% by weight based on the thermoplastic polymer melt, of graphite, carbon black, or aluminum powder.
11. (Previously Presented) A process as claimed in claim 2, further comprising an adsorbent wherein the adsorbent used comprises aluminum hydroxide, phyllosilicate, or zeolite.
12. (Previously Presented) A process as claimed in claim 2, wherein the blowing agent also comprises CO₂, N₂, or an aliphatic, halogenated, or halogen-free hydrocarbon.
13. (Previously Presented) A process as claimed in claim 3, wherein the blowing agent also comprises CO₂, N₂, or an aliphatic, halogenated, or halogen-free hydrocarbon.
14. (Previously Presented) A process as claimed in claim 2, wherein the thermoplastic polymer used comprises polystyrene, styrene copolymers, polyethylene, polypropylene, or a mixture of these.

15. (Previously Presented) A process as claimed in claim 3, wherein the thermoplastic polymer used comprises polystyrene, styrene copolymers, polyethylene, polypropylene, or a mixture of these.

16. (Previously Presented) A process as claimed in claim 4, wherein the thermoplastic polymer used comprises polystyrene, styrene copolymers, polyethylene, polypropylene, or a mixture of these.

17. (Previously Presented) A process as claimed in claim 5, wherein the thermoplastic polymer used comprises polystyrene, styrene copolymers, polyethylene, polypropylene, or a mixture of these.

18. (Previously Presented) A process as claimed in claim 2, wherein the thermoplastic polymer has a bi-or multimodal molecular weight distribution.

19. (Previously Presented) A process as claimed in claim 3, wherein the thermoplastic polymer has a bi-or multimodal molecular weight distribution.

20. (Previously Presented) A process as claimed in claim 4, wherein the thermoplastic polymer has a bi-or multimodal molecular weight distribution.

21. (Canceled)

22. (Previously presented) A process for producing foam beads from thermoplastic polymers, encompassing the stages of

- a) addition of a blowing agent to a thermoplastic polymer melt,
- b) cooling and extrusion, through a die, of the polymer melt comprising blowing agent,
- c) cutting of the polymer melt comprising blowing agent downstream of the die at reduced pressure with foaming to give foam beads,

which comprises using a blowing agent in which water and a solubilizer are present, wherein the foam beads have a bulk density below 30 kg/m^3 and wherein the solubilizer used comprises an aliphatic ketone, ether, or ester.